

Summary Notification Information Format

A. General information

A1. Details of notification

Notification Number

B/BE/11/V4

Member State

Belgium

Date of Acknowledgement

xx December 2011

Title of the Project

Scientific field research using maize that has altered growth characteristics

Proposed period of release:

01/04/2012 to 31/10/2014

A2. Notifier

Name of the Institute(s) or Company(ies)

VIB

A3. Is the same GMPt release planned elsewhere in the Community?

No

A4. Has the same GMPt been notified elsewhere by the same notifier?

No

B. Information on the genetically modified plant

B1. Identity of the recipient or parental plant

- | | |
|-------------------------------|---------------------------------|
| (a) Family name: | <i>Poaceae</i> |
| (b) Genus: | <i>Zea</i> , section <i>Zea</i> |
| (c) Species: | <i>Zea mays</i> |
| (d) Subspecies: | <i>mays</i> |
| (e) Cultivar / breeding line: | inbred line B104 |
| (f) Common name: | maize |

B2. Description of the traits and characteristics which have been introduced or modified, including marker genes and previous modifications

The genetically modified maize has an altered growth characteristic resulting from the introduction of a Ga20Oxidase-1 gene stemming from *Arabidopsis thaliana*. As a result the plants become significantly longer without producing significantly more biomass.

Additionally the *bar*-gene from *Streptomyces hygroscopicus* is present in the plant as a selection marker gene. This *bar*-gene produces the Phosphinotricin Acetyl Transferase enzyme (PAT), which acetylates phosphinotricin, also known as glufonisinat, the active ingredient of the broad spectrum herbicides Basta and Liberty.

B3. Type of genetic modification

Insertion of genetic material.

B4. In case of insertion of genetic material, give the source and intended function of each constituent fragment of the region to be inserted

Feature	Function	Donor
Left T-DNA-border	T-DNA insert border	<i>Agrobacterium tumefaciens</i>
NOS-BAR (= <i>bar</i> -T _{NOS})	Phosphinotrycine acetyl transferase followed by the nopaline synthase terminator	<i>Streptomyces hygroscopicus</i> and <i>Agrobacterium tumefaciens</i>
P _{35S}	Transcription promoter	CaMV
AttB4	Excision-integration site*	Lysogenic <i>E.coli</i>
UBIL	Ubiquinine promoter	Zea mays
AttB1	Excision-integration site*	Lysogenic <i>E.coli</i>
GA20Oxidase-1	Codes for the enzyme GA20Oxidase-1	<i>Arabidopsis thaliana</i>
AttB2	Excision-integration site*	Lysogenic <i>E.coli</i>
T _{35S}	Transcription terminator	CaMV
Right T-DNA-border	T-DNA insert border	<i>Agrobacterium tumefaciens</i>

*The AttB1, -2 en -4 sequences are mutated versions of the AttB sequences that were originally isolated from lysogenic *E.coli*

B5. In the case of deletion or other modification of genetic material, give information on the function of the deleted or modified sequences

Not applicable

B6. Brief description of the method used for the genetic modification

The method used for the genetic transformation is based on *Agrobacterium tumefaciens* co-cultivation with maize embryos. After this co-cultivation an embryogenic callus is developed and using a selective medium modified plantlets are regenerated.

C. Experimental Release

C1. Purpose of the release

The purpose of the release is to verify the altered growth characteristics of the maize under agricultural conditions and to test the suitability of this maize for a higher plant density.

C2. Geographical location of the site

The site of release is located in the municipality of Wetteren.

C3. Size of the site (m²)

The size of the site will be no more than 500m².

C4. Relevant data regarding previous releases carried out with the same GM-plant, if any, specifically related to the potential environmental and human health impacts from the release

There have been no earlier releases with the same GM plant.

D. Summary of the potential environmental impact from the release of the GMPts

The altered phenotype – increased height, without producing more biomass – resulting from the introduction of a Ga20oxidase gene is not expected to result in any effects other than the greater height. Fluctuations in the level of Ga20oxidase are already present in conventional cereal crops leading to plants with different heights. The semidwarf phenotype in rice that was at the basis of the green revolution resulted from a mutation in a Ga20oxidase gene.

The presence of the herbicide tolerance marker gene is also not expected to result in any environmental impact. The gene is not introduced with the intention to use the herbicide in the field.

The presence of the Att sequences is also not expected to lead to any environmental impacts. Even if the presence of these sequences would lead to a higher chance of horizontal gene transfer, it is not expected that a receiving bacterium would gain any selective advantage from having a Ga20oxidase-1 gene, which results in more stretching of the plant.

E. Brief description of any measures taken for the management of risks

The tassels of the plants will be removed before they start shedding pollen and the maize cobs will be carefully harvested manually to prevent any spread of seeds. Harvested cobs will be transported in closed labeled bags and will be transported to the VIB laboratories in Ghent. Cobs and seeds will be stored there and may be used for further research. Material that is no longer needed will be inactivated. Harvested stems will be collected in bags or tons that will be closed. That material will then be transported to either Ghent or Merelbeke for further measurements, before being inactivated. No harvested material will be consumed.

F. Summary of foreseen field trial studies focused to gain new data on environmental and human health impact from the release

The modification is not expected to lead to any effect on human health or the environment. If in the first year during the general monitoring unexpected differences between the modified maize and its parental line would appear, for instance in disease vulnerability or interaction with non-target organisms, then in the second or third year additional observations will be done.